

# PAPI-C Original Notes

- components scoping planning and assignments
  - communication components
    - Completion semantics
      - How to handle latency discrepancies
    - Gemini prospects
  - PBS interface: e.g. time remaining, topology (David)
- API for managing perf\_events throttling
  - If perf\_events does throttling, user space needs to know
  - 100,000 / sec appears to be the limit
  - Can PAPI report the actual count at overflow?
  - Explore rates vs period specification (PAPI)
  - Investigate whether throttling is an issue (Rice)
- Perf\_events support for other event types
  - Separate components or all events in CPU component
    - 1<sup>st</sup> implementation as separate compents
- Component module versioning and APIs
  - PAPIconfig shell script
    - Provide a mechanism to build a list of all LD\_LIBRARY\_PATH dependencies
    - Explore what kinds of info other configs export
- Something outside HPC to expand stakeholder base??
  - Sysadmins?
- PAPI as a tuning tool vs. PAPI as a reporting tool
  - Reporting “static” configuration parameters
- Overloading set/get opt to set and read parameters
- What kinds of performance feedback could be exported via a component
- Discuss with OFED people about eliminating write access requirement for PAPI component
- Identify key components to seed Repository to attract broader interest / wupport
  - Juelich developing an external energy measurement component
  - MPIT component
- Paragraph to john & bart

# PAPI-C @ CScADS 2010

Attendees:

Terpstra, Skinner, Geimer, Krentel

# Basic PAPI Issues

- API for managing perf\_events throttling?
  - If perf\_events does throttling, user space needs to know
  - 100,000 samples / sec apparent limit
  - Can PAPI report actual count at overflow? (PAPI)
  - Explore rates vs period specification (PAPI)
  - Investigate whether throttling is an issue (Rice)
- Perf\_events support for other event types
  - Separate components or all events in CPU component?
    - 1<sup>st</sup> implementation as separate components

# PAPI-C

- Communication components (??)
- Component Completion semantics
  - How to handle latency discrepancies; timeouts (Skinner / PAPI)
  - Out-of-band counter measurement; remote daemons?
- Component module versioning and APIs
  - Geimer notes potential library path “hell” for a collection of components
  - PAPIconfig shell script (PAPI)
    - Provide a mechanism to build a list of all library path dependencies
    - Explore what kinds of info other config tools export
- PAPI as a tuning tool vs. PAPI as a reporting tool
  - Overloading set/get opt to set and read parameters
  - PAPI Components can do lots of things; which ones are appropriate?
- Discuss with OFED people about Infiniband write access requirement (Skinner)

# PAPI-C

- Implement a Components Repository (PAPI)
- Identify key components to seed Repository and attract broader interest / support (all)
  - External energy measurement component (Juelich)
  - Gemini component: Cray has a proprietary interface; components as closed source? (Cray / PAPI)
  - PBS interface: e.g. time remaining, topology (Skinner)
  - MPIT component (Martin / OpenMPI / PAPI)
- Something outside HPC to expand stakeholder base??
  - Sysadmins?
  - Gamers?
  - Haskell?  
<http://hackage.haskell.org/trac/ghc/wiki/Debugging/LowLevelProfiling/PAPI>
- What kinds of dynamic performance feedback (for AutoTuning) could be exported via a component?
  - Topic for next week's Session
  - Shirley to attend (PAPI)

# Common Config File

- Can we agree on a common format xml configuration file?
  - Shared across multiple tools
  - Separate sections for each tool
  - Single point for tool configuration info